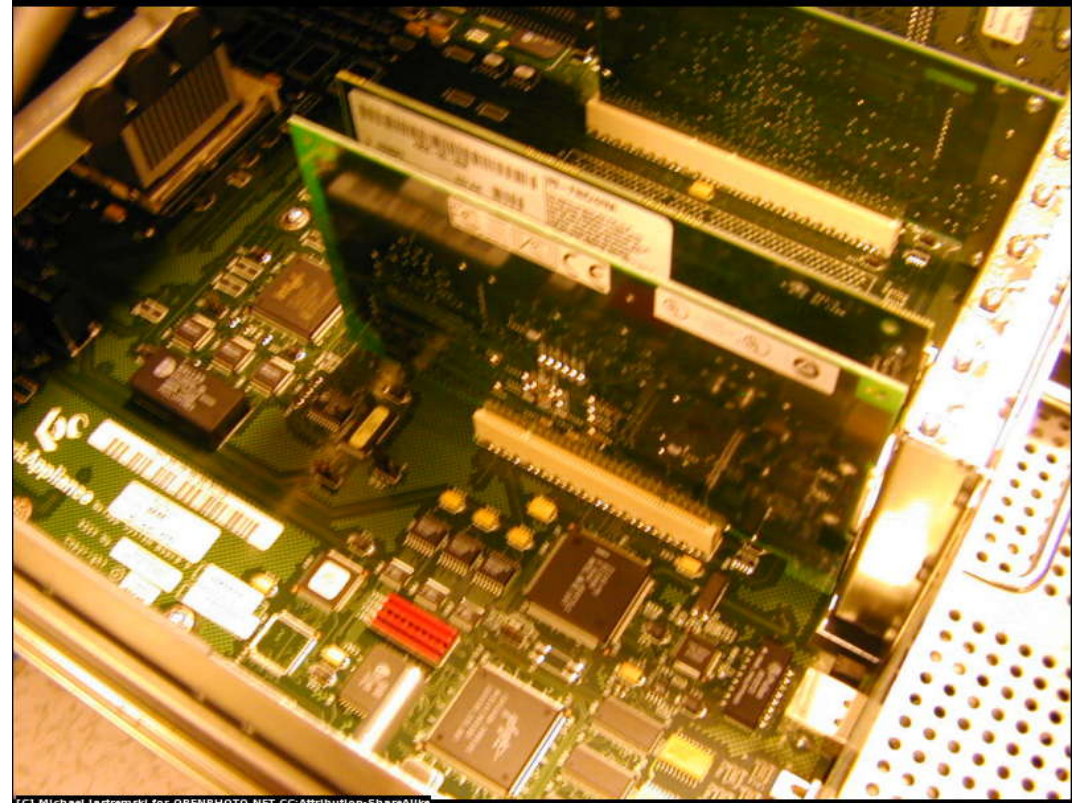


# Hardware-Software Architectures for FPGA-based Quantum Communication systems

Quantum Communications uses the laws of quantum physics to securely transport data from one place to another. The setup broadly consists of photon sources, transport channels, detectors and quantum information processing. FPGAs, due to their flexibility, highly parallel architecture and availability of rich resources and peripherals, are an ideal platform to implement such systems. Two sub-topics are available:

- (1) FPGA based Arbitrary Waveform Generation with short switching time and high resolution in frequency and phase for Quantum Control Applications.
- (2) FPGA based implementations of Error Control Coding (ECC) algorithms for QKD applications



Prerequisites: Good knowledge of VHDL/Verilog and Digital Logic Architecture and Design

Type of Work: Research Seminar (5 credits)

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